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Beyond the quantum limit in gravitational wave detectors

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The sensitivity of current and next generation interferometric gravitational wave detectors is limited by the quantum properties of the laser light. The quantum noise can be manipulated to improve the sensitivity of gravitational wave detectors in a variety of ways, one of the most promising being injection of squeezed states of the electromagnetic vacuum field into the output port of the interferometer. I will describe recent progress toward and future prospects for sub-quantum noise limited operation of gravitational wave detectors.